

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the present application:

1-20. (Canceled)

21. (Currently amended) A device ~~for logging~~ to log information in a network cache, the device comprising:

a user interface to allow a user to select a protocol, to select for logging some or all of a plurality of fields for the protocol that may be present in a message from a remote node, and to specify a sequence in which the selected fields are to appear in a log file;

a first data structure for storing a value indicating a position in the user specified sequence for each selected field;

a protocol independent log module to receive information from an application module, to store the information in a second data structure, and to store a reference to the information for each selected field stored in the second data structure in a location of a third data structure that corresponds to the position in the user-specified sequence for the corresponding field; and

a log file wherein the information for each selected field from the second data structure is sequentially written using the reference from the third data structure.

22. (Currently amended) The ~~apparatus~~ device of claim 21, wherein the application module is protocol specific and obtains information for each selected field associated with the message.

23. (Previously presented) The device of claim 21, wherein the user interface allows the user to create new fields in addition to the plurality of fields.

24. (Previously presented) The device of claim 21, wherein each location in the first data structure is pre-initialized to contain a flag before the user-specified sequence is stored, the flag being utilized as an indicator that the user did not select that field for logging.

25. (Previously presented) The device of claim 21, wherein the user interface is a graphical user interface.

26. (Previously presented) The device of claim 21, wherein the user interface is a command line interface.

27. (Previously presented) A method of logging information in a network cache, the method comprising:

providing a user interface to allow a user to select for logging some or all of a plurality of fields that may be present in a message from a remote node and to specify a sequence in which the selected fields are to appear in a log file;

storing in a first data structure a value indicating the position in the user-specified sequence of each selected field;

in response to a message received over a network from a remote node,

obtaining information for each selected field associated with the message and storing the information in a second data structure, in a sequence independent of the user-specified sequence,

storing in a third data structure, based on the first data structure, a reference to the information for each selected field stored in the second data structure, including storing each reference in a location of the third data structure that corresponds to the position in the user-specified sequence of the corresponding field; and

using the third data structure to output the information for each selected field in the second data structure to a log file, such that the information for each selected field appears in the log file according to the user-specified sequence.

28. (Previously presented) The method of claim 27, wherein the user interface allows the user to create new fields in addition to the plurality of fields.

29. (Previously presented) The method of claim 27, wherein the information for each field is converted to an ASCII representation and is of variable length.

30. (Previously presented) The method of claim 27, wherein each location in the first data structure is pre-initialized to contain a flag before the user-specified sequence is stored, the flag to be utilized as an indicator that the user did not select that field for logging.

31. (Previously presented) The method of claim 27, wherein the second data structure and the third data structure are created to respond to logging for the message and destroyed once logging for the message is completed.

32. (Previously presented) The method of claim 27, wherein the first data structure persists through logging for a plurality of messages received from remote nodes.

33. (Currently amended) The method of claim 27, wherein using the third data structure to output the information further comprises sequentially accessing the third data structure to read the position of the information corresponding to each selected field and accessing the second data structure to read information corresponding to each selected field at the position indicated by the reference.

34. (Previously presented) A device for logging information in a network cache, the device comprising:

- a user interface to allow a user to select a protocol, to select for logging some or all of a plurality of fields of a message from a remote node, the fields depending upon a protocol of the message, and to specify a sequence in which the selected fields are to appear in a log file;

- a protocol specific application module to obtain information for each selected field associated with the message;

- a protocol independent log module to receive information for each selected field from the protocol specific application module and to store the information for each selected field in a log file in the sequence specified by the user.

35. (Currently amended) A device ~~for logging to log~~ information in a network cache, the device comprising:

- a user interface to allow a user to select for logging some or all of a plurality of fields that may be present in a message from a remote node, wherein the user is

allowed to specify a sequence in which the selected fields are to be subsequently output in a log file, and wherein the user-specified sequence of each selected field is stored in a first data structure;

an application module to receive the message from the remote node, to access the first data structure to determine if a field is to be logged and the sequence in which the selected fields are to be stored in the log file, and to send information for each selected field associated with the message along with the sequence number for that field to a log module;

a setup and destroy module to dynamically create and destroy a second data structure and a third data structure in response to requests from the application module;

the log module to receive information corresponding with each selected field and the sequence of the information for each selected field from the application module, to store information corresponding with each selected field in the second data structure, and to store in the third data structure a reference to the position of information for each field in the second data structure, each reference being stored in a location of the third data structure corresponding to the user specified sequence of each selected field;

an output module to sequentially access the third data structure to read the position of the ASCII representation of each selected field and to access the second data structure to read the ASCII representation of each selected field at the position indicated by the reference; and

a log file wherein the information for each selected field from the second data structure is sequentially written using the reference in the third data structure.

36. (Previously presented) The device of claim 35, wherein the user interface allows the user to create new fields in addition to the plurality of fields.

37. (Previously presented) The device of claim 35, wherein each location in the first data structure is pre-initialized to contain a flag before the user-specified sequence is stored, the flag being utilized as an indicator that the user did not select that field for logging.

38. (Previously presented) The device of claim 35, wherein the user interface is a graphical user interface.

39. (Previously presented) The device of claim 35, wherein the user interface is a command line interface.

40. (Previously presented) A method of logging information in a network cache, the method comprising:

- providing a user interface to allow a user to select for logging some or all of a plurality of fields that may be present in a message from a remote node and to specify a sequence in which the selected fields are to appear in a log file;

- storing in a first data structure a value indicating a position in the user-specified sequence for each selected field;

- receiving a message over a network from a remote node;

- creating a second data structure and a third data structure to correspond to the received message;

- examining the first data structure to determine which fields to extract;

extracting information for each selected field from the message;
obtaining an ASCII representation of the information for each selected field;
placing the ASCII representation corresponding with each selected field in the second data structure;
placing in the third data structure a reference to the position of each ASCII representation of each selected field in the second data structure, wherein each reference is stored in a location of the third data structure corresponding to the position in the user specified sequence of the corresponding field in said subset;
sequentially accessing the third data structure to read the position of the ASCII representation of each selected field and accessing the second data structure to read the ASCII representation of each selected field at the position indicated by the reference;
writing to the log file the ASCII representation of each selected field from the second data structure as each ASCII representation is sequentially accessed using the reference in the third data structure; and
removing the second data structure and the third data structure.

41. (Previously presented) The method of claim 40, wherein the user interface allows the user to create new fields in addition to the plurality of fields.
42. (Previously presented) The method of claim 40, wherein the information for each field is converted to an ASCII representation and is of variable length.

43. (Previously presented) The method of claim 40, wherein each location in the first data structure is pre-initialized to contain a flag before the user-specified sequence is stored.

44. (Previously presented) A device for logging information in a network cache, the device comprising:

means for providing a user interface to allow a user to select for logging some or all of a plurality of fields that may be present in a message from a remote node and to specify a sequence in which the selected fields are to appear in a log file;

means for storing in a first data structure a value indicating a position in the user-specified sequence for each selected field;

means for receiving a message over a network from a remote node;

means for creating a second data structure and a third data structure to correspond to the received message;

means for examining the first data structure to determine which fields to extract;

means for extracting information for each selected field from the message;

means for obtaining an ASCII representation of the information for each selected field;

means for placing the ASCII representation corresponding with each selected field in the second data structure;

means for placing in the third data structure a reference to the position of each ASCII representation of each selected field in the second data structure, wherein each reference is stored in a location of the third data structure corresponding to the user specified sequence of each field in the subset;

means for sequentially accessing the third data structure to read the position in the user-specified sequence of the ASCII representation of each selected field and for accessing the second data structure to read the ASCII representation of each selected field at the position indicated by the reference;

means for writing to the log file the ASCII representation of each selected field from the second data structure as each ASCII representation is sequentially accessed using the reference in the third data structure; and

means for removing the second data structure and the third data structure.

45. (Previously presented) A computer program embodied on a computer-readable medium representing sequences of instructions which, when executed by a processor cause the processor to perform a process comprising:

providing a user interface to allow a user to select for logging some or all of a plurality of fields of a message from a remote node, the fields dependent upon a protocol used to convey the message, and to specify a sequence in which the selected fields are to appear in a log file;

storing in a first data structure a value indicating a position in the user-specified sequence for each selected field;

in response to a message received over a network from a remote node,

obtaining information for each selected field associated with the message and storing the information in a second data structure, in a sequence independent of the user specified sequence;

storing in a third data structure, based on the first data structure, a reference to the information for each selected field stored in the second data

structure, including storing each reference in a location of the third data structure that corresponds to the position in the user-specified sequence of the corresponding field; and

using the third data structure to output the information for each selected field in the second data structure to a log file, such that the information for each selected field appears in the log file according to the user-specified sequence.